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10                   **MACHINE WITH CUP-SHAPED ARMATURE AND AIR GAP**Abstract of The Disclosure

          An electro-mechanical machine is disclosed which has a field  
producing assembly providing a cup-shaped air gap which is circumferentially  
disposed about an axis of rotation. The field assembly produces a  
15 circumferential distribution of magnetic flux in the cup-shaped air gap having n  
periodic extremes of flux density about the axis. A cup-shaped electrical  
assembly or armature is disposed in the air gap and the armature and field  
assembly are relatively rotatable. The armature has a circular array of C non-  
overlapping coils on each of its inner and outer faces with the coils on one face  
20 being angularly offset from the coils on the other face. Moreover, since the air  
gap and coils are cup-shaped, it is possible to achieve, for a machine of given  
diameter and form factor, a horsepower and torque which was previously  
possible only with substantially larger disk-type motors. That is because the  
total volume of the air gap and coils correspond to those of a much larger  
25 diameter disk-type motor.

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